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ABSTRACT

The following tests and techniques have been developed by the U.S. Employment Service for the measurement of occupational aptitude, clerical skills, literacy skills, and occupational interest: General Aptitude Test Battery (GATB), Nonreading Aptitude Test Battery (NATB), Specific Aptitude Test Battery (SATB), Clerical Skills Tests, Basic Occupational Literacy Test (BOLT), Pretesting Orientation Techniques, JEVS Work Sample Assessment, and Interest Check List (ICL). These tests and assessment techniques are described in detail in this report. These tests have wide applicability and are used by local offices of state employment services, schools, employment and training organizations, and many foreign countries. (RC)

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The U.S. Employment Service Tests and Assessment Techniques

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U.S. Employment Service Test Research Report No. 32

U.S. Department of Labor
Employment and Training Administration
1977

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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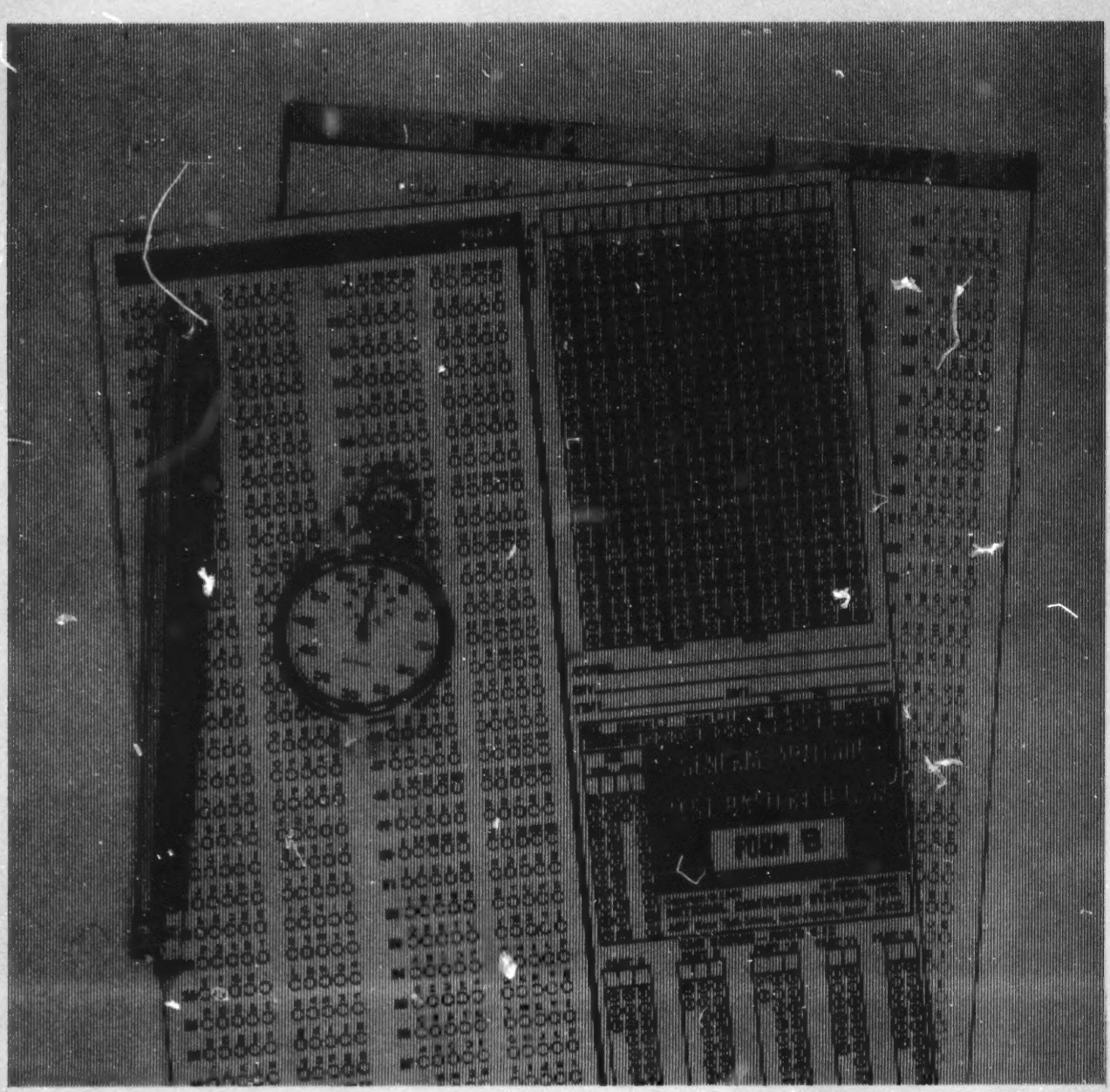

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USES Test Research Report No. 32

The U. S. Employment Service Tests and Assessment Techniques

U. S. DEPARTMENT OF LABOR
W. J. Usery Jr., Secretary

Employment and Training Administration
William H. Kolberg
Assistant Secretary for Employment and Training
1977

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FOREWORD

The United States Employment Service conducts a test research program for developing testing tools useful in vocational counseling and placement.

The purpose of this series of reports is to provide results of significant test research projects as they are completed. These reports will be of interest to users of USES tests and to test research personnel in State agencies and other organizations.

This report was prepared in the Division of Testing, U. S. Employment Service, by Robert C. Droege, Marlin Ferral, and John Hawk.

The U. S. Employment Service
Tests and Assessment Techniques

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U.S. Employment Service
Tests and Assessment Techniques

The U.S. Employment Service, in cooperation with State employment services, has conducted a continuing program of occupational test research and development since the mid 1930's. This program has produced a variety of tests and assessment techniques useful in vocational counseling and in selection of individuals for specific jobs. The tests have wide applicability and are used by local offices of State employment services, schools, employment and training organizations, and many foreign countries.

The following tests and techniques have been developed for measurement of occupational aptitude, clerical skills, literacy skills, and occupational interest:

General Aptitude Test Battery (GATB) consists of 12 tests measuring 9 vocational aptitudes. It measures the vocational aptitudes of individuals who have basic literacy skills but who need help in choosing an occupation. A Spanish version (BEAG) is available.

Nonreading Aptitude Test Battery (NATB) consists of 14 tests measuring the same 9 aptitudes measured by the GATB. It was developed for use with individuals who do not have sufficient literacy skills to take the GATB.

Specific Aptitude Test Batteries (SATB) consist of combinations of two, three, or four GATB aptitudes with associated cutting scores. More than 450 of these have been developed for use in selecting untrained or inexperienced applicants for referral to specific jobs or occupational training.

Clerical Skills Tests measure proficiency in typing, dictation, and spelling to determine level of skills required in clerical jobs.

Basic Occupational Literacy Test (BOLT) consists of four parts: arithmetic computation, arithmetic reasoning, reading vocabulary, and reading comprehension. It measures the literacy skills of educationally deficient applicants and can be related to the literacy requirements of occupations.

Pretesting Orientation Techniques are used in orienting the applicant to the testing situation. The techniques include a booklet "Doing Your Best on Aptitude Tests," available in English and Spanish; a booklet "Doing Your Best on Reading and Arithmetic Tests;" a miniature aptitude test battery "Pretesting Orientation Exercises;" and an illustrated lecture-discussion technique "Pretesting Orientation on the Purpose of Testing," available in English and Spanish.

JEVS Work Sample Assessment consists of a series of work tasks, a structured environment in which they are performed, and an evaluation of the client's behavior based on observations. This technique, developed through contract with the Jewish Employment and Vocational Service of Philadelphia, is designed for use in developing the employability of disadvantaged individuals.

Interest Check List(ICL) consists of 173 sample tasks representing a broad range of occupational activities. It is used as an interviewing aid to obtain information on the range of an applicant's occupational interests.

These tests and assessment techniques are described in detail in the following sections.

General Aptitude Test Battery (GATB) and Specific Aptitude Test Batteries (SATB)

Description

The GATB consists of twelve tests measuring nine occupational aptitudes, as follows:

1. General Learning Ability (G) - The ability to "catch on" or understand instructions and underlying principles; the ability to reason and make judgements (measured by Part 3 - Three Dimensional Space; Part 4 - Vocabulary; Part 6 - Arithmetic Reason).

2. Verbal Aptitude (V) - The ability to understand meaning of words and ideas associated with them and the ability to use them effectively. The ability to comprehend language, and to understand relationships between words, and to understand meanings of whole sentences and paragraphs. The ability to present information or ideas clearly (measured by Part 4 - Vocabulary).

3. Numerical Aptitude (N) - Ability to perform arithmetic operations quickly and accurately. (measured by Part 2 - Computation; Part 6 - Arithmetic Reason)

4. Spatial Aptitude (S) - Ability to comprehend forms in space and understand relationships of plane and solid objects. Frequently described as the ability to "visualize" objects of two or three dimensions, or to think visually of geometric forms (measured by Part 3 - Three Dimensional Space).

5. Form Perception (P) - Ability to perceive pertinent details in objects or in pictorial or graphic material. Ability to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines (measured by Part 5 - Tool Matching; Part 7 - Form Matching).

6. Clerical Perception (Q) - Ability to perceive pertinent detail in verbal or tabular material. Ability to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation (measured by Part 1 - Name Comparison).

7. Motor Coordination (K) - Ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed. Ability to make a movement response accurately and swiftly (measured by Part 8 - Mark Making).

8. Finger Dexterity (F) - Ability to move the fingers and manipulate small objects with the fingers rapidly and accurately (measured by Part 11 - Assemble; Part 12 - Disassemble).

9. Manual Dexterity (M) - Ability to move the hands easily and skillfully. Ability to work with the hands in placing and turning motions (measured by Part 9 - Place; Part 10 - Turn).

Finger dexterity and manual dexterity are measured with the use of apparatus tests, while the other aptitudes are measured by paper-and-pencil tests.

The Manual for the USES General Aptitude Test Battery (U.S. Department of Labor 1970a) consists of separately bound sections; they are as follows:

Section I - Administration and Scoring, B-1002: Contains procedures for administration and scoring of the twelve tests comprising the GATB and the tables used in converting raw test scores to aptitude scores.

Section II - Occupational Aptitude Pattern Structure: Contains the GATB Occupational Aptitude Pattern structure used for counseling purposes. Occupational Aptitude Patterns (OAP's) for sixty-two occupational groups are shown for adults and ninth and tenth graders. These OAP's are combinations of GATB aptitudes and cutting scores, indicating aptitude requirements for groups of occupations.

Section III - Development: Contains technical information on the development of the GATB; procedures for GATB occupational validation research; techniques used in developing Specific Aptitude Test Batteries (SATB's) and the GATB Occupational Aptitude Pattern (OAP) structure; information on the effects of age, minority group status, cultural exposure, disabilities, sex, and training on aptitude scores; and guidelines for using GATB test results.

Section IV - Norms: Specific Occupations: Contains the GATB minimum aptitude requirements for specific occupations and includes alphabetical and industrial indexes to the occupations covered.

Development

The original edition of the General Aptitude Test Battery was published in 1947 (Dvorak, 1947). It evolved from the work of the Occupational Research Program in the U.S. Employment Service (Shartle et al, 1944) and the previous work of the Minnesota Employment Stabilization Research Institute (Paterson and Darley, 1936).

The basic assumption underlying the GATB was that the few basic aptitudes underlying the large variety of tests that had been used by the employment service could be identified through factor analysis and that a large variety of occupations could be clustered into groups according to similarities in the aptitudes required. Use of such a test battery would make it feasible to test a person's important vocational aptitudes in one sitting and to interpret the scores in terms of qualifications for a wide range of occupations.

The nine GATB aptitudes were identified by factor analysis studies of more than fifty tests that the employment service had been using over a period of years. Twelve tests were chosen which provide adequate measures of all nine aptitudes (Staff, Division of Occupational Analysis, 1945). Two criteria were applied in choosing the tests - factorial validity and empirical validity against external criteria. Sometimes the test with the highest factorial validity was disregarded in favor of a test that had acceptable factorial validity but had also repeatedly demonstrated its practical validity against criteria of success for a number of jobs.

To provide a common scale for the nine GATB aptitudes, a general working population sample of workers in a wide variety of occupations was tested with the tests chosen to measure these aptitudes. The data from this sample were used to develop tables for converting raw test scores to standardized scores with a mean of 100 and a standard deviation of 20 for each aptitude of the GATB (Mapou, 1955).

Since its publication in 1947, the GATB has been researched in a continuing program of development and occupational validation. This research has produced over 450 Specific Aptitude Test Batteries (SATB's), consisting of combinations of two, three or four aptitudes with associated cutting scores for specific occupations and a system of Occupational Aptitude Patterns (OAP's), consisting of combinations of three aptitudes with associated cutting scores for groups of occupations. A description of this research is contained in the Manual for the USES General Aptitude Test Battery, Section III: Development.

Because of the possibility that SATB's might be invalid and/or unfair for minority groups, current emphasis is being placed on revalidating existing SATB's using samples which include subgroups of minorities large enough to permit separate statistical analysis. SATB's revalidated with such samples (some two dozen by mid 1976) have demonstrable fairness and validity for minority groups.

Research is being completed to develop a new Spanish edition of the GATB. This new edition, the Bateria de Examenes de Aptitud General (BEAG), is designed to have general applicability for use with Spanish-speaking ES applicants, including those in Puerto Rico.

Administration and Scoring

Administration of the entire GATB requires about two and one-quarter hours. All of the paper-and-pencil tests, except Part 8, are arranged in two booklets for which answer sheets are provided. Part 8 is on a separate sheet and no answer sheet is required. Scoring stencils are used for hand scoring. Raw scores are converted to aptitude scores by use of conversion tables. When more than one test is used to provide a measure of a given aptitude, the converted scores for each test are summed to obtain the aptitude score.

Occupational Aptitude Patterns (OAP's) are combinations of three GATB aptitudes with associated cutting scores. They indicate the aptitude requirements for groups of occupations. There are 62 OAP's and they cover more than 1,200 occupations. The OAP-aptitude score matching process, described in detail in the Manual for the USES General Aptitude Test Battery, Section I: Administration and Scoring, is as follows:

> The individual's GATB aptitude scores are compared with the aptitude cutting scores for the OAP's and a letter grade of "H," "M," or "L" is assigned for each OAP. Letter grades are assigned as follows:
>
> > If the individual's obtained scores meet or exceed all the cutting scores for a given OAP, /she achieves a letter grade of "H that OAP.
> >
> > If the individual's scores plus one standard error of measurement (SE_m) meet or exceed all the cutting scores, a letter grade of "M" is assigned. (The standard error of measurement of an aptitude is an index of the accuracy or reliability of individual scores on the aptitude. The (SE_m) is expressed in the same units as the aptitude score itself. The (SE_m) varies for the nine aptitudes and differ for the GATB and NATB.)
> >
> > If the individual's scores plus one standard error of measurement (SE_m) do not meet all the cutting scores, a letter grade of "L" is assigned.

There is a nationwide scoring service available when NCS or Intran answer sheets are used. The service includes converting raw scores to aptitude scores, matching aptitude scores with OAP's, and printing a Test Record Card with the results.

Specific Aptitude Test Batteries (SATB's) are combinations of two, three, or four aptitudes with associated cutting scores. SATB's reflect aptitude requirements for specific occupations against which an individual's aptitude scores can be matched. There are more than 450 SATB's, and the SATB-aptitude score matching process is the same as that for OAP's.

Interpretation

A counselee's performance on the GATB is interpreted in terms of his scores (H, M, or L) on OAP's and SATB's. The interpretation of the letter grades is as follows:

H - The individual's scores equal or exceed those of workers judged to be satisfactory in the occupations. If he/she is also qualified on the basis of factors other than aptitudes, there is a good probability that he/she will do well on the job.

M - The individual's scores are close to those of workers judged to be satisfactory in the occupations. The chances of his/her doing well on the job are somewhat lower than those of persons in the H category if other factors are equal.

L - The individual's scores are similar to or below those of workers found to be unsatisfactory in the occupations. The chances of his/her being satisfactory on the job are low and he/she should be considered for other jobs which utilize stronger aptitudes.

The OAP's, and the occupations covered by each, are shown in the Manual for the USES General Aptitude Test Battery, Section II: Occupational Aptitude Pattern Structure. The SATB's are shown in Section IV: Norms: Specific Occupations.

Nonreading Aptitude Test Battery

Description

The Nonreading Aptitude Test Battery was designed for use with educationally deficient individuals who do not have sufficient literacy skills to take the GATB. It measures the same aptitudes as the GATB. The nine aptitudes and the tests used to measure these aptitudes are listed below:

G - Intelligence
- Test A - Picture-Word Matching
- Test B - Oral Vocabulary
- Test D - Design Completion
- Test F - Three-Dimensional Space

V- Verbal Aptitude
- Test A - Picture-Word Matching
- Test B - Oral Vocabulary

N - Numerical Aptitude
- Test B - Oral Vocabulary
- Test C - Coin Matching
- Test D - Design Completion
- Test H - Coin Series

S - Spatial Aptitude
- Test F - Three-Dimensional Space

P - Form Perception
- Test E - Tool Matching
- Test G - Form Matching

Q - Clerical Perception
- Test I - Name Comparison

K - Motor Coordination
- GATB Part 8 - Mark Making

F - Finger Dexterity
- GATB Part 11 - Assemble
- GATB Part 12 - Disassemble

M - Manual Dexterity
- GATB Part 9 - Place
- GATB Part 10 - Turn

Following is a brief description of the 14 tests which make up the Nonreading Aptitude Test Battery:

1. Picture-Word Matching (Test A). - A 42-item test in which the examinee must determine which of five pictures associates best with a stimulus word read by the examiner. These items are in order of increasing difficulty for low education individuals. Measures Aptitudes G and V.

2. Oral Vocabulary (Test B). - Contains 45 items which must be read to the examinee. The examinee must decide whether the two words are the same, opposite, or different. These items are in order of increasing difficulty for low education individuals. Measures Aptitudes G, V, and N.

3. Coin Matching (Test C). - A 63-item test in which the examinee must indicate whether two groups of coins have the same value. Measures Aptitude N.

4. Design Completion (Test D). - Contains 29 matrix type items which are in order of increasing difficulty. Measures Aptitudes G and N.

5. Tool Matching (Test E). - This test consists of a series of exercises containing a stimulus drawing and four black-and-white drawings of simple shop tools. The examinee indicates which of the four black-and-white drawings is the same as the stimulus drawing. Variations exist only in the distribution of black and white in each drawing. Contains 48 items. Measures Aptitude P.

6. Three-Dimensional Space (Test F). - This test consists of a series of exercises containing a stimulus figure and four drawings of three-dimensional objects. The stimulus figure is pictured as a flat piece of metal which is to be either bent, or rolled, or both. Lines indicate where the stimulus figure is to be bent. The examinee indicates which one of the four drawings of three-dimensional objects can be made from the stimulus figure. Contains 40 items. Measures Aptitudes G and S.

7. Form Matching (Test G). - This test consists of two groups of variously shaped line drawings. The examinee indicates which figure in the second group is exactly the same size and shape as each figure in the first or stimulus group. Contains 48 items. Measures Aptitude P.

8. Coin Series (Test H). - Three subtests, of which Part I has 72 items, Parts II and III each have 46 items. The examinee must mentally manipulate the coins according to the assigned system. Measures Aptitude N.

9. Name Comparison (Test I). - This test consists of two columns of names. The examinee inspects each pair of names, one in each column, and indicates whether the names are the same or different. Contains 150 items. Measures Aptitude Q.

10-14. Same as GATB Parts 8-12, which measure Aptitudes K, F, and M.

The Manual for the USES Nonreading Aptitude Test Battery (U.S. Department of Labor, 1970b, 1971) is composed of separately bound sections as follows:

Section 1 - Administration, Scoring and Interpretation:

Contains procedures for administration and scoring of the 14 tests comprising the NATB, tables used in converting raw test scores into aptitude scores, and interpretation of aptitude scores using the Occupational Aptitude Pattern structure of the GATB and Specific Aptitude Test Batteries (SATB's).

Section 2 - Development: Contains technical information on the development of the NATB.

The Occupational Aptitude Patterns (OAP's) to be used are those developed for the GATB. Information on OAP's is obtained by reference to the Manual for the USES General Aptitude Test Battery, Section II: Occupational Aptitude Pattern Structure.

Development

The GATB was used as the model for the development of the NATB because (1) the GATB measures the most important vocationally significant aptitudes and (2) the GATB has been validated extensively against occupational criteria. The tests making up the NATB were selected on the basis of multiple correlations with GATB aptitude scores and standardized on the basis of data from disadvantaged groups. A detailed account of the development and standardization of the NATB is presented in the Manual for the USES Nonreading Aptitude Test Battery, Section 2: Development, and in an article by Droege, Showler, Bemis and Hawk (1970).

At its present stage of development, the Nonreading Aptitude Test Battery can be said to have only indirect basis of validity. It has not been validated against hard criteria of job and training success of disadvantaged individuals. It derives what validity it has on the basis of its relationship to the GATB, which has been validated extensively against job criteria.

Additional development work is underway to improve the NATB. The goals are to decrease testing time and to develop better measures of Verbal Aptitude, Numerical Aptitude, and Clerical Perception.

Administration and Scoring

The paper-and-pencil tests, A-I, of the NATB are printed in eight booklets. There are no separate answer sheets, and the examinee marks answers in the booklets. Form A is the only form available. Administration time is about 3½ hours and no more than six may be tested at one time. Directions for administration and scoring the NATB are contained in the Manual for the USES Nonreading Aptitude Test Battery, Section 1: Administration, Scoring and Interpretation. A machine-scoring service is available which provides for scoring the test booklets, converting raw scores to aptitude scores,

matching aptitude scores with Occupational Aptitude Patterns, and printing test record cards and permascore labels. This service is available from two sources: National Computer Systems, Inc. and Intran Corporation, both of Minneapolis, Minnesota.

Interpretation

A counselee's performance on the NATB is interpreted in terms of scores (H, M, or L) on Occupational Aptitude Patterns (OAP's), which are the same as those used for the GATB.

Clerical Skills Tests

Description

The six clerical skills tests measure skills important in a variety of clerical occupations. The skills measured are: typing from plain copy, ability to take dictation, general spelling, statistical typing, medical spelling and legal spelling.

1. The plain copy typing test consists of typing from a typed page containing two letters for five minutes. Either a manual or electric typewriter may be used, as the examiner prefers. The test content is typical of correspondence of a variety of types of employers. Six forms of the Typing Test are available. The test yields separate measures of typing speed (words per minute and decile scores) and typing accuracy expressed as a decile score which compares the examinee to experienced typists.

2. The dictation test consists of two 200 word letters which are dictated at 60,80 and 100 words per minute. Content of the letters are typical of correspondence of a variety of employers. Examinees take dictation on stenographic notebooks, in the usual manner, but transcription is accomplished by marking a true-false answer sheet to indicate whether certain words were or were not dictated. Twenty five minutes are allowed to complete the true-false test. The test may be administered "live" or by standardized recordings. Six forms of the dictation test are available. The test yields an accuracy score expressed as a decile score to indicate how well the examinee was able to correctly identify selected words in the two passages as compared to secretaries and stenographers generally. The number of dictated words per minute at which the examinee took dictation is also reported, although this is not, strictly speaking, a score.

3. The spelling test consists of 90 words, some correctly spelled and some incorrectly spelled. The content is typical of words used in correspondence in a variety of employment situations. There are two forms of the general spelling test. The test yields an accuracy score expressed as a decile score which

expresses the examinee's standing relative to a sample of experienced secretaries and stenographers.

4. The statistical typing test consists of typing from numerical material in a columnar form for 10 minutes on either a manual or an electric typewriter, as the examinee prefers. There is only one form of this test. The test yields speed and accuracy scores expressed as a decile score, which allows comparison of the examinee to experienced typists who spend at least 10% of their time typing tabular material.

5. The medical spelling test consists of 40 medical terms which are read aloud by the examiner, using a pronunciation guide, and spelled out by examinees on an answer form. The test yields an accuracy score expressed as a decile, which allows comparison of the examinee to employed workers in the medical clerical field.

6. The legal spelling test consists of 40 legal terms which are read aloud by the examiner, using a pronunciation guide, and spelled out by examinees on an answer form. The test yields an accuracy score, expressed as a decile, which allows comparison of examinee's performance with performance of employed workers in the legal clerical field.

The Manual for USES Clerical Skills Tests (U.S. Department of Labor, 1976) consists of two separately bound sections, as follows:

Section 1: Administration, Scoring and Interpretation: Contains procedures for administration and scoring of the six clerical skills tests and guidelines for interpreting and using the test results.

Section 2: Development: Contains detailed technical information on the development of each of the clerical skills tests.

Development

Earlier versions of the typing and dictation tests were used in the public employment service in the 1930's. The general spelling test was introduced in the early 1940's, the statistical typing test was first used in the mid 1950's, and medical and legal spelling tests were issued in the late 1960's. The first three tests, which are used for testing applicants for general clerical positions, were developed on large samples representative of U.S. clerical workers who perform the tasks measured by the tests. Census data on geographical distribution, age, education, sex and industry in which employed were used to select these samples. The latter three tests, which measure less usual clerical tasks, were developed on samples of employed workers in appropriate clerical specialties, but the samples are of unknown

representativeness because no census data existed for these clerical specialties the time the tests were developed.

Great care was exercised, however, in the selection of all samples, whether Census data were or were not available. In additon, great care was exercised in selection of material included in these tests to make the tasks as representative as possible of the tasks performed by typists, stenographers, secretaries, etc, throughout the U.S. The tests that did not meet standards for reliability were subsequently eliminated.

One reason for the particular care exercised in selection of representative test material and samples was that content validation was chosen as the appropriate strategy for assuring the fairness and appropriateness of the tests. Work sample tests such as the clerical skills tests are generally considered the best prospects for content validation. In addition, empirical validation of clerical skills tests is generally not feasible because, although there are millions of typists, stenographers and secretaries in the United States, it is extremely difficult to find a minimum sized sample of workers who perform the same job in the same location.

Administration and Scoring

Instructions for administering and scoring each of the clerical skills tests are found in Section 1 of the Manual for USES Clerical Skills Tests. The norm tables for each test are used to correct raw scores to deciles based on representative samples of experienced workers.

Interpretation and Use

Section 1 of the Manual for the USES Clerical Skills Tests provides information on use and interpretation. Much of the use for clerical skills tests is self evident; if a clerical job includes the task measured to "a significant extent," the test will be useful in placement in the job. Judgment enters into use in determing what "a significant extent" really means. If the worker occasionally types up a few index cards or a very rough draft of a letter, the typing test may be unnecessary. If a secretary does mostly typing and administrative duties and takes a few shorthand notes once a month, does he or she have to take the dictation test? This should be discussed at some length with the employer, since he or she might prefer a person who can take no shorthand but who is an able and industrious worker in all other respects.

As stated previously, the norms are based on test performance of experienced workers and a lower grade score is expected for new and inexperienced workers. It may require some persuasive ability to convince an employer that clerical skills develop over time and an entry clerical worker, on the average, will score lower than an experienced worker.

Basic Occupational Literacy Test

Description

The Basic Occupational Literacy Test (BOLT) is a test of basic reading and arithmetic skills for use with educationally disadvantaged adults. Reading skills are assessed by a Reading Vocabulary subtest and a Reading Comprehension subtest. Arithmetic skills are assessed by an Arithmetic Computation subtest and an Arithmetic Reasoning subtest.

BOLT Reading Vocabulary, Reading Comprehension and Arithmetic Computation test forms are available at four levels of difficulty: Advanced, High Intermediate, Basic Intermediate and Fundamental. BOLT Arithmetic Reasoning test forms are available at three levels of difficulty: Advanced, Intermediate and Fundamental. Alternate forms A, B, and C are available for each subtest at each level of difficulty, except the advanced level for which alternate forms A and B are available.

The content of BOLT items is generally suitable for adults; content pertaining to school, toys, and other children's activities is not used. In general, reading content is similar to that found in newspapers, popular magazines, or non-technical instruction manuals.

The counselor determines the appropriate level of BOLT for each individual to take in each content area by using a combination of Wide Range Scale scores and the individual's reported years of education. The Wide Range Scale consists of eight Vocabulary items and eight Arithmetic items administered to each applicant individually by the counselor.

The Manual for the Basic Occupational Literacy Test (U.S. Department of Labor, 1972) is composed of separately bound sections as follows:

> Section 1 - Administration, Scoring and Interpretation: Contains procedures for administration and scoring of BOLT tests in the four content areas, tables used in converting raw test scores into Standard Scores and General Educational Development (GED) Levels, and interpretation of GED Levels using the GED ratings of occupations in a supplement to the Dictionary of Occupational Titles (U.S. Department of Labor, 1966).
>
> Section 2 - Development: Contains technical information on the development of the BOLT.

Development

The BOLT developmental stages consisted of item construction, preparation of administration directions, preliminary tryouts, item analysis, preparation of final test forms, and equating BOLT scores to the General Educational Development (GED) levels defined in the Dictionary of Occupational Titles. A detailed account of the development of the BOLT is presented in the Manual for the USES Basic Occupational Literacy Test, Section 2: Development.

The BOLT norms in use are based on the GED ratings in the Dictionary of Occupational Titles. These are considered interim norms which should eventually be replaced because (1) no direct relationships between occupational success and BOLT scores have been established, and (2) the GED ratings are too broad to make fine distinctions between those who possess and those who lack requisite literacy skills to perform in an occupation.

A criterion-related validation program is now underway, using three different criterion measures on both trainees and employed workers. A content validation program is being designed. Content validation may either supplement criterion-related validation or become the major norm development tool of the BOLT, depending on the relative cost and feasibility of content and criterion-related validation research.

Administration and Scoring

Instructions for scoring each BOLT test by hand and converting the raw scores to standard scores and GED levels are found in Section 1 of the Manual for the Basic Occupational Literacy Test. Answer sheets may also be machine scored. The procedure for sending answer sheets to the scoring center appears in Section 1 of the Manual for the USES Basic Occupational Literacy Test. Results are returned in the form of a Test Record Card showing identification information on the examinee and the test raw scores, standard scores and GED levels.

Interpretation

The BOLT is used when the counselor has reason to doubt that the counselee has sufficient literacy skills to be considered for occupations or occupational training for which the counselee is otherwise qualified. Most of the individuals who are scheduled to take BOLT will be the same individuals who have taken or are scheduled to take the NATB. In addition, anyone who is scheduled to take a Spanish language version of the GATB should ordinarily be given the BOLT to see whether he can be placed in English speaking training or work environment.

BOLT scores are interpreted in terms of General Educational Development (GED) levels 1-4, as listed in the supplement to the Dictionary of Occupational Titles.

Related Techniques

BOLT Wide Range Scale

This instrument is used as an indicator of appropriate levels of BOLT subtests to administer and as a device to determine whether the GATB or NATB would be more appropriate for a given individual. The Wide Range Scale may be administered individually by the counselor or group administered in the testing unit. The Scale takes about fifteen minutes to administer and is scored separately for Vocabulary and Arithmetic.

Determining appropriate levels of BOLT subtests. Results on the Wide Range Scale are interpreted together with information on claimed years of education and other information obtained in the counseling interview to choose the most appropriate level of the BOLT for the examinee to take. Scores on Wide Range Vocabulary are used in choosing levels of the BOLT Reading Vocabulary and Reading Comprehension test forms, and scores on Wide Range Arithmetic are used in choosing levels of the BOLT Arithmetic Computation and Arithmetic Reasoning.

Determining whether the GATB or NATB would be more appropriate. Multiple cutting scores on Vocabulary and Arithmetic have been established as an aid to determine whether the GATB or NATB should be administered to a given individual. Three State employment services participated in the development of this GATB-NATB screening device. They administered several experimental screening measures to a total of 231 individuals representing a wide range of literacy skills. Analysis of the data indicated that the BOLT Wide Range vocabulary and arithmetic subtests provided the best differentiation between those who do relatively better on the GATB and those who do relatively better on the NATB. Details of the developmental research are reported in Part 2 of the Manual for the GATB-NATB Screening Device (U.S. Department of Labor, 1973).

Pretesting Orientation Techniques

Many disadvantaged individuals are unfamiliar with tests, do not understand the purpose of testing, and fear group testing situations. As a result, some do not show up for scheduled testing and others tend to score lower than they should because of fear or inadequate motivation. Pretesting orientation techniques are needed to minimize these problems and a variety of techniques are required. The three techniques indicated below may be used separately or in combination, depending upon the needs of the applicants.

Doing Your Best on Aptitude Tests. This is a booklet containing an explanation of the purpose of taking tests, hints on how to prepare for and take aptitude tests, and illustrative test items. A Spanish language version is also available. The booklet is intended for individuals who are somewhat disadvantaged but can read well enough to take aptitude tests. The booklet may be given to individuals who are scheduled to take aptitude tests in the local office or it may be placed on a rack for applicants to help themselves.

Doing Your Best on Reading and Arithmetic Tests. This is a booklet containing an explanation of the purpose of taking reading and arithmetic tests, hints on how to prepare for and take reading and arithmetic tests, and illustrative test items. It is intended for individuals who are educationally deficient but who can read well enough to take reading and arithmetic tests. The booklet may be given to individuals who are scheduled to take the Basic Occupational Literacy Test in the local office or it may be placed on a rack for applicants to help themselves.

USES Pretesting Orientation Exercises. The exercises are a miniature test battery administered as a series of short tests whose items resemble the first eight parts of the GATB. The following materials are involved:

Test Booklet for the USES Pretesting Orientation Exercises
Marking Exercise
Manual for the USES Pretesting Orientation Exercises
NCS Expanded Answer Sheet for GATB, Form A

The Pretesting Orientation Exercises should be administered only by a qualified test administrator. The administration time for all of the exercises is about 1½ hours. The exercises offer practice in test-taking to individuals who possess minimum literacy skills for taking the GATB but who may have little experience with aptitude tests and may be uneasy about being tested. Their use in pretesting orientation sessions will provide disadvantaged applicants scheduled to take the GATB experience in group test-taking in a non-threatening atmosphere. The exercises are flexible enough that they can be shortened for individuals who only need a refresher orientation to tests or they can be presented in full in an intensive orientation program.

Pretesting Orientation on the Purpose of Testing. This is an illustrated lecture-discussion consisting of 23 pictures, available in flipchart or booklet form, and a prepared script explaining each picture. The first 13 points cover the purpose of testing, explain aptitudes and aptitude testing, and describe the relationship between testing and jobs. The final 10 points give specific hints on test taking. The following materials are involved:

Manual for Pretesting Orientation on the Purpose of Testing - available in English and Spanish
Illustrations for Pretesting Orientation on the Purpose of Testing (Individual Booklets) - available in English and Spanish
Illustrations for Pretesting Orientation on the Purpose of Testing (Flipcharts) - available in English only

Through a step-by-step presentation of elementary testing concepts, Pretesting Orientation on the Purpose of Testing is designed to develop the examinee's understanding of aptitude testing. The presentation is general enough so that applicants scheduled for the NATB or GATB will find it useful. The orientation is designed to be flexible. It may be presented to groups or individuals; the two major parts can be administered separately; it can be shortened or lengthened.

Information about the above pretesting orientation techniques and their availability may be obtained from State employment service offices or from the Division of Testing, Employment and Training Administration, U.S. Department of Labor, Washington, D.C. 20213.

Work Sample Assessment

Work samples are standardized job performance tasks designed for use in developing the employability of disadvantaged individuals. The work-sample technique consists of the work samples per se, a structured environment in which they are performed, and evaluations of the client's behavior based on observations. Work samples provide the individual and his vocational counselor with a common basis for discussion, provide a basis for evaluation of the individual's occupational potentials, and provide the individual with a basis for developing insights into areas of interests, aptitudes, and motivation. The work-sample technique is particularly useful with disadvantaged clients having histories of failure in school.

In 1968 the Jewish Employment and Vocational Service of Philadelphia developed and tested a work sample battery of 28 tasks for use in selected employment service offices. Performance on the 28 tasks, administered over a two-week period in a simulated industrial setting, can be related to qualifications in 10 different Worker Trait Groups (WTGs) of the 3rd edition of the DOT. In addition to obtaining measures of skill performance, the client is observed and evaluated on his work attitude, promptness in reporting to work, accuracy of performance, learning speed, acceptance of authority, expressed job interests, and other work-related behaviors. The obtained information is used by counselors to recommend the client for immediate job placement, related training, or necessary ancillary services.

Evaluation of the JEVS Work Sample Assessment System indicated that, although the system was strongly endorsed by both clients and counselors, revisions were needed to reduce administration time and costs and broaden the range of occupational coverage. Accordingly, it was decided to do additional developmental work to improve the system. This research is well underway. It has proved possible to devise a "Basic Battery" of 12 Work Samples applicable to 9 Worker Trait Groups, and an "Extended Battery" of five additional Work Samples applicable to a further nine Worker Trait Groups. Thus, the total battery consists of 17 Work Samples assessing client characteristics with respect to 18 WTGs. The system, already developed in large part, is now being refined and training materials are being prepared. It is likely to be particularly useful in CETA units dealing with disadvantaged clients.

Interest Checklist

This is an interviewing aid used to obtain information on the range of vocational interests of a counselee. It is particularly useful with persons who have no definite work interests or who have limited knowledge of the variety of jobs and occupational fields. The checklist enumerates 173 items that have been taken without alteration in wording or sequence and keyed to the Worker Trait Arrangement (WTA) and Occupational Group Arrangement (OGA) of the third edition of the Dictionary of Occupational Titles (U.S. Department of Labor 1965). The numbers in parentheses underneath each group of items in the checklist refer to WTA and OGA classifications which should be explored with the counselee when responses indicate an interest in the activities described. The Interest Checklist should be administered in accordance with the separately published Instructions for Administering and Using the Interest Checklist.

No score is obtained from the Interest Checklist. It is not a test, but rather an interviewing aid. It is an exploratory device from which the counselor and counselee can investigate together the range of vocational interests of the counselee. Details of interpretation are contained in the Instructions for Administering and Using the Interest Checklist.

USES Interest Inventory

An occupational interest inventory oriented to the forthcoming 4th edition of the Dictionary of Occupational Titles is being developed. The goal of this research is to make available to vocational counselors an interest inventory with scales for measuring an applicant's occupational interests which will relate directly to DOT Areas of Work. At this point in the research, the basic interest scales have been developed and additional research is underway to strengthen these scales.

Release of USES Tests to Other Organizations

USES tests are developed primarily for use in the public employment service system. They form an important component in comprehensive employment services provided to both applicants and employers. Although designed primarily to meet the needs of employment service interviewers and counselors for assessment of applicants, these tests are also often useful to counselors in other organizations, rehabilitation agencies, prisons, etc. Some of these tests are on public sale, and others are on restricted sale, which means that orders from the suppliers must be routed through the State employment service for approval.

Because of the usefulness of USES tests to other nonprofit organizations, the employment service has developed a procedure for release of USES tests to other agencies, when warranted, for operational use or for research. As an alternative, cooperative arrangements are sometimes made whereby an agency's clients may be referred to the employment service local office for testing. Organizations interested in exploring these possibilities should contact their State employment service.

In some instances, tests are approved for release to foreign users (U.S. Department of Labor, 1976). Interested individuals should contact the Division of Testing, Employment and Training Administration, U.S. Department of Labor, Washington, D.C. 20013.

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